

Abstract

A non-explosive acoustic source utilizes the combustion of aluminum and water to generate an acoustic pulse. The operation of the non-explosive acoustic source relies on a water/aluminum reaction to generate a burst pressure. The source may be deployed as a single charge or as one element of a multiple charge array and is configurable to explode at variable depths with variable energy levels. The inherent safety of the non-explosive acoustic source obviates the necessity for auxiliary safety features or procedures to protect against inadvertent explosion. As a result, the non-explosive acoustic source facilitates the implementation of sonic detection systems and reduces the operational costs associated with such systems.